

=> S (LIQUID STABLE) (5W) POLYURETHANE?

613713 LIQUID

341599 STABLE

154 LIQUID STABLE

(LIQUID(W)STABLE)

90290 POLYURETHANE?

L12 0 (LIQUID STABLE) (5W) POLYURETHANE?

=> S (ABRASION RESISTANT) (P) POLYURETHANE?

55900 ABRASION

223209 RESISTANT

8730 ABRASION RESISTANT

(ABRASION(W)RESISTANT)

90290 POLYURETHANE?

L13 687 (ABRASION RESISTANT) (P) POLYURETHANE?

16:13:37

=> S (ROOM TEMPERATURE CUR?) (P) POLYURETHANE?

388363 ROOM

870989 TEMPERATURE

TERM 'CUR?' EXCEEDED TRUNCATION LIMITS - SEARCH ENDED

=> S (ROOM TEMPERATURE) (P) POLYURETHANE?

388363 ROOM

870989 TEMPERATURE

289775 ROOM TEMPERATURE

(ROOM(W)TEMPERATURE)

90290 POLYURETHANE?

L14 4183 (ROOM TEMPERATURE) (P) POLYURETHANE?

=> S L13 AND L14

L15 92 L13 AND L14

16:17:04 => S HIGH PERFORMANCE

1447182 HIGH

369124 PERFORMANCE

L16 48703 HIGH PERFORMANCE

(HIGH(W)PERFORMANCE)

=> S L15 AND L16

L17 7 L15 AND L16

=> D L17 1-7 CIT AB

1. 5,853,846, Dec. 29, 1998, Conformable magnetic articles underlaid beneath traffic-bearing surfaces; Gary W. Clark, et al., 428/131; 180/167, 168;

340/901, 905; 404/6, 9, 14, 16, 71; 428/143, 149, 156, 325, 343, 692, 694B, 694BC, 694R, 900; 701/23 [IMAGE AVAILABLE]

US PAT NO: 5,853,846 [IMAGE AVAILABLE] L17: 1 of 7
16:19:16

US PAT NO: 5,853,846 [IMAGE AVAILABLE] L17: 1 of 7

ABSTRACT:

A conformable magnetic article for underlayment beneath a traffic-bearing surface which sends a magnetic signal to a sensor traveling over the traffic-bearing structure. The magnetic article comprises at least one conformable magnetic layer comprising a binder and a sufficient amount of magnetic particles dispersed within the binder to provide a magnetic signal through the traffic-bearing structure to a sensor.

2. 5,316,791, May 31, 1994, Process for improving impact resistance of coated plastic substrates; Bruce M. Farber, et al., 427/164, 379, 393.5, 412.1 [IMAGE AVAILABLE]

US PAT NO: 5,316,791 [IMAGE AVAILABLE] L17: 2 of 7

ABSTRACT:

A process for improving the impact resistance of a coated plastic substrate, particularly those polymers having a high refractive index, comprising
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US PAT NO: 5,316,791 [IMAGE AVAILABLE] L17: 2 of 7
applying an aqueous polyurethane dispersion as a primer layer to at least one surface of the plastic substrate, at least partially curing the aqueous polyurethane dispersion by air drying at ambient temperature, applying a coating composition over the polyurethane primer layer, and curing the coating composition to form an abrasion resistant hard coat. Preferably, the aqueous polyurethane dispersion is air dried at ambient temperature for less than one hour before application of the abrasion resistant coating composition. The process provides an impact enhancing, abrasion resistant coating system having strong interfacial adhesion that is preferably transparent for application onto preferably transparent plastic articles, such as ophthalmic lenses and safety eye wear.

3. 5,212,210, May 18, 1993, Energy curable compositions having improved cure speeds; Leo W. Halm, 522/24; 427/517; 522/12, 29, 174; 528/50 [IMAGE AVAILABLE]

US PAT NO: 5,212,210 [IMAGE AVAILABLE] L17: 3 of 7
16:19:17

US PAT NO: 5,212,210 [IMAGE AVAILABLE]

L17: 3 of 7

ABSTRACT:

A composition and method provide improved physical properties and cure speed of polyurethane precursors, with or without free radical polymerizable monomers or oligomers present, by use of a two component catalyst system. The resin blend can be activated with a latent organometallic catalyst combined with an organic peroxide which can be a hydroperoxide or an acyl peroxide to decrease the cure time while increasing the break energy and tangent modulus of the system.

4. 4,636,546, Jan. 13, 1987, Process for preparing modified polymer emulsion adhesives; Yen-Yau H. Chao, 524/507; 525/123 [IMAGE AVAILABLE]

US PAT NO: 4,636,546 [IMAGE AVAILABLE]

L17: 4 of 7

ABSTRACT:

This invention is directed to an improved process for preparing coating or adhesive compositions useful in bonding expanded vinyl which is vacuum
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US PAT NO: 4,636,546 [IMAGE AVAILABLE]

L17: 4 of 7

laminated to molded fiberboard substrates, comprising (1) mixing an aqueous dispersion of an addition polymer containing active hydrogen, wherein the addition polymer contains essentially no polyurethane functional moieties, with water emulsifiable difunctional and/or multi-functional isocyanate, and (2) subsequently adding to the mixture an aqueous dispersion of a polyurethane polymer. Adhesive compositions prepared using the process exhibit both superior shear strength and superior hot peel strength at elevated temperatures.

5. 4,405,684, Sep. 20, 1983, Rigid magnetic coating composition with thermosetting binder for hard file; Bruce F. Blumentritt, et al., 428/336, 65.3, 418, 425.9, 457, 694BL, 694BP, 694BR, 694BU, 694BY [IMAGE AVAILABLE]

US PAT NO: 4,405,684 [IMAGE AVAILABLE]

L17: 5 of 7

ABSTRACT:

A magnetic recording disk coating having a high density of magnetic particles uniformly dispersed in a high performance, thermoset polyurethane resin
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US PAT NO: 4,405,684 [IMAGE AVAILABLE]

L17: 5 of 7

binder with the dispersion applied as a thin coating onto a rigid substrate. The thermosetting resin binder comprises a blocked isocyanate polymer reacted

with hydroxy terminated or branched oligomer or oligomers. The coating composition has an extended shelf life and can be cured at temperatures below 375.degree. F. to produce a smooth, hard, tough durable and well dispersed magnetic coating with an improved orientation ratio that readily accepts buffing, washing, and lubrication.

6. 4,273,912, Jun. 16, 1981, Polyurethane floor varnish and floor materials coated therewith; Walter L. Harmer, 528/67; 428/423.1, 423.3, 424.8, 425.8; 528/59, 66 [IMAGE AVAILABLE]

US PAT NO: 4,273,912 [IMAGE AVAILABLE]

L17: 6 of 7

ABSTRACT:

A tough, wear-resistant polyurethane coating composition particularly suited for providing a protective coating on an elastomeric flooring is provided by the moisture-cured reaction product of an organic isocyanate-terminated
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US PAT NO: 4,273,912 [IMAGE AVAILABLE]

L17: 6 of 7

prepolymer produced by reacting a diol component comprising at least one diol having a weighted average molecular weight between about 500 and 1200 and two primary hydroxyl groups, sufficient diisocyanate compound having two terminal isocyanate groups and sufficient compatible catalyst to facilitate the cure of the prepolymer. The invention also includes a floor covering material having a traffic surface coated with the coating composition.

7. 3,957,753, May 18, 1976, Liquid hydroxy-terminated polyesters; Fritz Hostettler, et al., 560/189; 521/172; 524/310; 528/77, 83; 536/18.2; 560/182, 199 [IMAGE AVAILABLE]

US PAT NO: 3,957,753 [IMAGE AVAILABLE]

L17: 7 of 7

ABSTRACT:

Solid and microcellular polyurethane elastomers prepared by reacting (a) liquid polyesters containing from about 25 percent by weight to about 70 percent by weight of the epsilon-oxycaproyl unit, the balance of the polyester being derived from the reaction of at least one dicarboxylic acid

US PAT NO: 3,957,753 [IMAGE AVAILABLE]

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with at least two glycols selected from the group consisting of ethylene glycol 1,3-propanediol, 1,4-butanediol and 1,5-pentanediol, (b) an organic polyisocyanate, and optionally (c) a chain-extender comprising water, glycols, amino alcohols, or diamines. If the liquid polyester (a) is branched, for example, by addition of small quantities of a triol, the reaction with the organic polyisocyanate may be conducted in the absence of a

chain-extender. Processes for producing these elastomers are also disclosed. Novel liquid, substantially primary hydroxyl-terminated, linear and branched polyesters containing from about 25 percent by weight to as much as about 70 percent by weight of the epsilonoxycaproyl unit ##EQU1## the balance of the polyester being derived from the reaction of at least one dicarboxylic acid with at least two straight chain glycols selected from the group consisting of ethylene glycol, 1,3-propanediol, 1,4-butanediol and 1,5-pentanediol. These polyesters have a true melting point no higher than about 30.degree.C. Also provided are processes for producing these polyesters.

=> S L15 NOT L17
L18 85 L15 NOT L17

=> D L18 1-85 CIT AB

1. 5,840,429, Nov. 24, 1998, Aircraft transparency; Thomas G. Rukavina, et al., 428/412, 423.3, 425.6, 500, 621, 624, 626, 629, 632, 700 [IMAGE AVAILABLE]

US PAT NO: 5,840,429 [IMAGE AVAILABLE] L18: 1 of 85

ABSTRACT:

The present invention relates to an aircraft transparency including an electroconductive metal oxide coating over a rigid plastic substrate, and a polyurethane protective liner over the metal oxide coating, and more specifically to the use of a primer for adhering the metal oxide coating to the substrate and/or a primer for adhering the polyurethane protective liner to the metal oxide coating. The metal oxide primer includes a carbonate diol-based crosslinked polyurethane. The polyurethane primer is selected from the group consisting of a crosslinked copolymer of acrylic acid and substituted acrylates such as 2-ethylhexylacrylate; a crosslinked copolymer

US PAT NO: 5,840,429 [IMAGE AVAILABLE] L18: 1 of 85
of cyanoethylacrylate and acrylic acid; and a crosslinked terpolymer of 2-ethylhexylacrylate, cyanoethylacrylate and acrylic acid.

2. 5,807,977, Sep. 15, 1998, Polymers and prepolymers from mono-substituted fluorinated oxetane monomers; Aslam A. Malik, et al., 528/402; 549/511; 568/615 [IMAGE AVAILABLE]

US PAT NO: 5,807,977 [IMAGE AVAILABLE] L18: 2 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated

alkoxymethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated alkoxymethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers. Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer

US PAT NO: 5,807,977 [IMAGE AVAILABLE] L18: 2 of 85
via a simple, high yield process amenable to commercial scaleup is also disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxymethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

3. 5,804,647, Sep. 8, 1998, Aqueous polyurethane-ureas, a process for their production and their use in coating compositions; Klaus Nachtkamp, et al., 524/591, 839, 840 [IMAGE AVAILABLE]

US PAT NO: 5,804,647 [IMAGE AVAILABLE] L18: 3 of 85

ABSTRACT:

The present invention relates to aqueous polyurethane-urea dispersions which are film forming at temperatures of $\geq 20^{\circ}\text{C}$. in the absence of film forming additives, dry at room temperature to yield films having a hardness according to DIN 53 157 (Konig pendulum hardness) of ≥ 100 seconds, in which the polyurethane-ureas have a urethane group content (calculated as $-\text{NH}-\text{CO}-\text{O}-$, molecular weight 59) of 7 to 20 wt. %, and a urea group content (calculated as $-\text{NH}-\text{CO}-\text{N}-$, molecular weight 57) of 5 to 18 wt. %, and contain 15-70 wt. %, based on resin solids, of structural units prepared by incorporating 1-methyl-2,4- and/or -2,6-diisocyanatocyclohexane in the form of urethane and/or urea groups. The present invention also relates to a process for the production of these

aqueous polyurethane-urea dispersions and to their use in coating compositions.

US PAT NO: 5,804,647 [IMAGE AVAILABLE]

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4. 5,703,194, Dec. 30, 1997, Fluorinated thermoset polyurethane elastomers prepared from polyether coprepolymers formed from mono-substituted fluorinated oxetane monomers and tetrahydrofuran; Aslam A. Malik, et al., 528/70, 402; 549/511; 568/615, 617 [IMAGE AVAILABLE]

US PAT NO: 5,703,194 [IMAGE AVAILABLE]

L18: 4 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated alkoxyethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated alkoxyethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers. Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer via a simple, high yield process amenable to commercial scaleup is also

US PAT NO: 5,703,194 [IMAGE AVAILABLE]

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disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxyethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

5. 5,686,544, Nov. 11, 1997, Organoborane polyamine complex initiator

systems and polymerizable compositions made therewith; Alphonsus V. Pocius,

526/196; 525/130, 131, 134, 459; 526/197, 198, 208 [IMAGE AVAILABLE]

US PAT NO: 5,686,544 [IMAGE AVAILABLE] L18: 5 of 85

ABSTRACT:

A composition comprises organoborane polyamine complex and polyol. The composition can form a part of a polymerization initiator system that also includes polyisocyanate. The system can be used to initiate polymerization of acrylic monomer and to form a polyurethane/polyurea acrylic adhesive that has exceptionally good adhesion to low surface energy polymers.

6. 5,685,091, Nov. 11, 1997, Sealed waterproof footwear; Seshamamba Yalamanchili, 36/55, 10 [IMAGE AVAILABLE]

US PAT NO: 5,685,091 [IMAGE AVAILABLE] L18: 6 of 85

ABSTRACT:

A waterproof footwear article is provided having a layer of a two component polyurethane system located above the insole board. The polyurethane system

US PAT NO: 5,685,091 [IMAGE AVAILABLE] L18: 6 of 85

also may penetrate the connecting region between the insole board and footwear upper. A process of waterproofing a footwear article is also provided which includes the step of introducing a two component polyurethane system into the interior of the footwear article and optionally applying forces to cause the polyurethane system to penetrate the various article layers.

7. 5,668,251, Sep. 16, 1997, Preparation of co-prepolymers from mono-substituted fluorinated monomers and tetrahydrofuran; Aslam A. Malik, et al., 528/402; 549/511; 568/615, 617, 620 [IMAGE AVAILABLE]

US PAT NO: 5,668,251 [IMAGE AVAILABLE] L18: 7 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated alkoxyethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated

US PAT NO: 5,668,251 [IMAGE AVAILABLE] L18: 7 of 85

alkoxyethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers.

Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer via a simple, high yield process amenable to commercial scaleup is also disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxymethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric

US PAT NO: 5,668,251 [IMAGE AVAILABLE] L18: 7 of 85
and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

8. 5,668,250, Sep. 16, 1997, Polyether coprepolymers formed from mono-substituted fluorinated oxetane monomers and tetrahydrofuran; Aslam A. Malik, 528/402; 549/511; 568/615, 617 [IMAGE AVAILABLE]

US PAT NO: 5,668,250 [IMAGE AVAILABLE] L18: 8 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated alkoxymethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated alkoxymethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers.

US PAT NO: 5,668,250 [IMAGE AVAILABLE] L18: 8 of 85

Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer via a simple, high yield process amenable to commercial scaleup is also disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxymethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to

give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

US PAT NO: 5,668,250 [IMAGE AVAILABLE]

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9. 5,654,450, Aug. 5, 1997, Monomers mono-substituted fluorinated oxetane; Aslam A. Malik, et al., 549/511 [IMAGE AVAILABLE]

US PAT NO: 5,654,450 [IMAGE AVAILABLE]

L18: 9 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated alkoxymethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated alkoxymethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers. Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer via a simple, high yield process amenable to commercial scaleup is also disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds

US PAT NO: 5,654,450 [IMAGE AVAILABLE]

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to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxymethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric

and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

10. 5,650,483, Jul. 22, 1997, Preparation of mono-substituted fluorinated oxetane prepolymers; Aslam A. Malik, et al., 528/402; 549/511; 568/615, 620 [IMAGE AVAILABLE]

US PAT NO: 5,650,483 [IMAGE AVAILABLE]

L18: 10 of 85

ABSTRACT:

This application is directed to novel fluorinated polymers and prepolymers derived from mono-substituted oxetane monomers having fluorinated alkoxyethylene side-chains and the method of making these compositions. The mono-substituted fluorinated oxetane monomers having fluorinated alkoxyethylene side-chains are prepared in high yield by the reaction of a fluorinated alkoxides with either 3-halomethyl-3-methyloxetane premonomers or aryl sulfonate derivative of 3-hydroxymethyl-3-methyloxetane premonomers. Preparation of a mono-substituted 3-bromomethyl-3-methyloxetane premonomer via a simple, high yield process amenable to commercial scaleup is also disclosed. The fluorinated oxetane monomers of this invention can be readily homo/co-polymerized in the presence of a Lewis acid and polyhydroxy compounds to obtain hydroxy-terminated polyether prepolymers having fluorinated alkoxyethylene side chains. Additionally, the fluorinated oxetane monomers can be copolymerized with non-fluorinated monomers such as tetrahydrofuran to give polyether prepolymers with improved hydrocarbon compatibility. These prepolymers are polydisperse and exhibit number average molecular weights

US PAT NO: 5,650,483 [IMAGE AVAILABLE]

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from 5,000 to about 50,000. These prepolymers are amorphous oils with primary hydroxy end-groups and thus function efficiently as the soft block for the synthesis of a variety of thermoset/thermoplastic elastomers and plastics having the characteristics of very low surface energy, high hydrophobicity, low glass transition temperature and low coefficient of friction. The polyurethanes derived from the prepolymers of this invention are elastomeric and, in addition to the above characteristics, exhibit high moisture resistance, high tear strength and excellent adhesion to a variety of substrates.

11. 5,648,149, Jul. 15, 1997, Adhesion of thermoset polyurethane to rigid transparent substrates; Thomas G. Rukavina, et al., 428/215, 213, 214, 412, 424.2, 424.4, 515, 520 [IMAGE AVAILABLE]

US PAT NO: 5,648,149 [IMAGE AVAILABLE]

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ABSTRACT:

The purpose of the present invention is to provide novel primer compositions

US PAT NO: 5,648,149 [IMAGE AVAILABLE] L18: 11 of 85
for use in bonding a thermoset polyurethane film to the surface of a polymeric substrate. The novel primer composition of the invention is an elastomeric polymer, particularly polyvinylpyrrolidinone, or a copolymer comprising vinylpyrrolidinone and alkyl acrylate or alkyl methacrylate. The construction of the article of the present invention comprises a transparent polymeric substrate, such as stretched acrylic, a primer layer of polyvinylpyrrolidinone or copolymer of vinylpyrrolidinone and alkyl acrylate or alkyl methacrylate on a surface thereof, and a film of thermoset polyurethane on the primer layer. The polyurethane is preferably a reaction product of isocyanate and a polyol such as polycaprolactone polyol, hexanediol carbonate polyol, cyclohexanedimethanol carbonate polyol, phthalate ester polyol, and hexanediol/cyclohexanedimethanol carbonate polyol. The effect of the primer composition of the present invention is to provide adequate adhesion of the thermoset polyurethane film to the polymeric substrate, such as stretched acrylic. The resulting article is particularly useful as an aircraft cabin window.

12. 5,480,688, Jan. 2, 1996, Shaped flexible decorative articles and method

for making same; Michael W. Kaumeyer, 428/13; 52/716.5; 293/128; 428/31 [IMAGE AVAILABLE]

US PAT NO: 5,480,688 [IMAGE AVAILABLE] L18: 12 of 85

ABSTRACT:

Shaped, flexible decorative emblems and a method for making the same are provided. The decorative emblems comprises a substrate layer having a decorative pattern thereon, a plastic lens cap, and an adhesive layer protected by a release liner. The decorative emblems are formed in the non-planar shape corresponding to the shape of the desired application surface. The method for making the non-planar decorative emblem involves casting the plastic lens cap on the substrate surface while the substrate is held substantially flat, subject the plastic to an initial cure while still flat, molding the emblem to a mandrel formed in the desired non-planar shape and subjecting the shaped emblem to a final cure to fix the emblem in the non-planar shape.

13. 5,433,980, Jul. 18, 1995, Preserved portraits and photographs and method for making same; Daniel L. Auld, et al., 428/13, 14, 28, 67, 68, 76, 174,

187, 195, 542.2, 913 [IMAGE AVAILABLE]

US PAT NO: 5,433,980 [IMAGE AVAILABLE]

L18: 13 of 85

ABSTRACT:

Preserved portraits or photographs and a method for making the same are provided. Paper substrates with portrait or photographic images are ideally preserved against the effects of sunlight, moisture and age by the method of the present invention. A plastic cap is cast upon at least one surface of the article and cured thereon. The plastic cap becomes integral to the surface of the substrate and acts to enhance the clarity and quality of the portrait or photographic image disposed on the substrate surface. Preferably, a backing layer is also provided on the substrate. More preferably, the backing layer comprises a magnetized layer allowing the preserved article to be displayed on metallic objects.

14. 5,290,585, Mar. 1, 1994, Lubricious hydrogel coatings; Richard K. Elton, 427/2.3, 385.5; 604/264, 265 [IMAGE AVAILABLE]

US PAT NO: 5,290,585 [IMAGE AVAILABLE]

L18: 14 of 85

ABSTRACT:

A flexible, lubricious organic coating is formed by applying a mixture of an isocyanate, a polyol, polyvinylpyrrolidone (PVP), and carrier liquid to a surface to be coated. The carrier liquid is removed and the mixture reacted to form a lubricious, flexible coating, particularly suitable for use as a protective lubricious coating on medical devices introduced into the body. The coating exhibits a significantly reduced coefficient of friction when exposed to water or aqueous solutions.

15. RE 34,538, Feb. 8, 1994, Glazing laminates; Heinrich Agethen, et al., 428/349; 156/99, 106, 313, 315; 428/423.3, 425.6, 906, 912 [IMAGE AVAILABLE]

US PAT NO: RE 34,538 [IMAGE AVAILABLE]

L18: 15 of 85

ABSTRACT:

An integument which contributes to the maintenance of surface integrity is disclosed, particularly a sheet for use in preparing laminates, such as

US PAT NO: RE 34,538 [IMAGE AVAILABLE]

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vehicle windshields, in which an energy absorbing ply, for example, a ply of poly(vinyl butyral), is sandwiched between two glass plies, the sheet of this invention being applied to an exposed surface of one of the glass plies and having one surface layer comprising a thermoplastic polyurethane capable of adhering to a glass or plastic substrate and the other surface layer

comprising a thermoset polyurethane having antilacerative, self-healing and anti-ablative properties; there is further disclosed the manufacture and application of such a sheet as a ply facing the interior of a vehicle, thereby forming a windshield the inwardly exposed surface of which comprises a thermoset polyurethane which protects the vehicle occupants from facial lacerations caused by windshield impact and which has self-healing properties.

16. 5,221,707, Jun. 22, 1993, Coating blend compositions; Kohji Y. Chihara, et al., 524/267 [IMAGE AVAILABLE]

US PAT NO: 5,221,707 [IMAGE AVAILABLE]

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US PAT NO: 5,221,707 [IMAGE AVAILABLE]

L18: 16 of 85

ABSTRACT:

A coating blend composition is a physical admixture of an adhesion promoter resin and a coating material resin. The blend can be cured by one or more curing agents existing within either the adhesion promoter resin, the coating material resin, or both. The utilization of such a blend eliminates the need for priming a substrate such as a rubber, or a thermoplastic or a thermoset polyolefin. The adhesion promoter resin is a urethane composition containing a blocked polyurethane prepolymer whereas the coating material resin can generally be any compound which has a functional or cosmetic purpose such as a different type of blocked polyurethane, and is generally utilized in a major amount. A particular application of the coating blend compositions of the present invention is to a glass run channel made from, for example, EPDM, as in an automotive door.

17. 5,194,505, Mar. 16, 1993, Chlorosulfonated polyolefin-modified polyurethane and polyurea compositions and process for making same; Edward G. Brugel, 525/131, 291, 292, 293 [IMAGE AVAILABLE]

US PAT NO: 5,194,505 [IMAGE AVAILABLE]

L18: 17 of 85

ABSTRACT:

A chlorosulfonated olefin polymer resin composition comprising the reaction product of:

- a) 1-80% by weight, based on the weight of the resin, of a chlorosulfonated olefin polymer having a chlorine content of about 20-60% by weight and a sulfur content of about 0.5-10% by weight;
- b) 5-90% by weight, based on the weight of the resin, of a compound selected from the group consisting of polyols, hydrocarbon primary and secondary polyamines, condensation products of said polyamines with aliphatic,

cycloaliphatic, or aromatic polycarboxylic acids, and mixtures thereof, wherein the equivalent ratio of the compound to sulfur in the chlorosulfonated olefin polymer is greater than 1:1 and the compound has an equivalent weight up to 5,000; and
c) at least 5% by weight, based on the weight of the resin, of a polyisocyanate;
is disclosed as well as the process for making same.

18. 5,160,790, Nov. 3, 1992, Lubricious hydrogel coatings; Richard K. Elton, 428/412, 423.1, 423.3, 423.5, 423.7, 423.9, 424.8; 525/123; 604/265 [IMAGE AVAILABLE]

US PAT NO: 5,160,790 [IMAGE AVAILABLE]

L18: 18 of 85

ABSTRACT:

A flexible, lubricious organic coating is formed by applying a mixture of an isocyanate, a polyol, polyvinylpyrrolidone (PVP), and carrier liquid to a surface to be coated. The carrier liquid is removed and the mixture reacted to form a lubricious, flexible coating, particularly suitable for use as a protective lubricious coating on medical devices introduced into the body. The coating exhibits a significantly reduced coefficient of friction when exposed to water or aqueous solutions.

19. 5,146,628, Sep. 15, 1992, Slip-resistant protective glove and method for manufacturing slip-resistant glove; Raymond J. Herrmann, et al., 2/16, 161.8, 167, 169 [IMAGE AVAILABLE]

US PAT NO: 5,146,628 [IMAGE AVAILABLE]

L18: 19 of 85

ABSTRACT:

A glove having patterned polyurethane coating adhered to outer surface. The coating is about 1/32 inch high and about 1/16 inch wide to give the glove slip-resistant and gripping properties. The coating is formed from (a) a pre-mixed thixotropic component, a non-thixotropic component in a 2.5 to 1 ratio, and an accelerator, and (b) a cross-linking agent. The method of manufacturing the glove involves applying a mixture of (a) and (b) as a strip to the glove, allowing the strip of coating to wet the fibers and then curing at a low temperature for a relatively short period of time.

20. 5,134,205, Jul. 28, 1992, Certain hydroxyalkyl carbamate compounds, homopolymers and copolymers thereof and uses thereof; Werner J. Blank, 525/509, 419, 439, 452, 461; 560/158 [IMAGE AVAILABLE]

US PAT NO: 5,134,205 [IMAGE AVAILABLE]

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US PAT NO: 5,134,205 [IMAGE AVAILABLE]

L18: 20 of 85

ABSTRACT:

This invention relates to certain polyamine hydroxyalkyl carbamate monomers, polymers and copolymers thereof and blends of the same with crosslinking film making agents and films thereof deposited on substrates.

21. 5,115,007, May 19, 1992, Abrasion resistant polyurethane blend compositions; Kohji Y. Chihara, et al., 524/267; 428/424.2, 425.6 [IMAGE AVAILABLE]

US PAT NO: 5,115,007 [IMAGE AVAILABLE]

L18: 21 of 85

order

ABSTRACT:

The present invention relates to a primerless, one-part, storage stable, fast heat curable, abrasion-resistant coating composition useful as a low friction coating for an EPDM glass run channel in vehicles or similar applications. The coating composition comprises a blocked polyurethane prepolymer, a coreactive crosslinking agent, and a compatible silicone oil.

US PAT NO: 5,115,007 [IMAGE AVAILABLE]

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The blocked polyurethane is desirably made from a hydroxyl terminated hydrogenated diene polymer or polyolefin, which is reacted with excess equivalents of a polyisocyanate reactant and the isocyanate groups blocked with a blocking agent. The cured polyurethane has very good abrasion resistance.

22. 5,053,274, Oct. 1, 1991, Highly filled substantially solid polyurethane, urea and isocyanurate composites for indoor and outdoor applications, for load bearing, structural and decorative products; Arthur E. Jonas, 428/332, 422.8, 423.1 [IMAGE AVAILABLE]

US PAT NO: 5,053,274 [IMAGE AVAILABLE]

L18: 22 of 85

ABSTRACT:

A composite comprises a mixture of a solid polyurethane, polyisocyanurate and/or polyurea binder with a preponderance of a solid or liquid filler. The composite may be used indoors and outdoors, for load bearing, structural and decorative products.

US PAT NO: 5,053,274 [IMAGE AVAILABLE]

L18: 22 of 85

23. 5,021,535, Jun. 4, 1991, Castor oil based polyurethane for underbody

coatings and the like; Cung Vu, et al., 528/66; 252/182.22; 427/388.1, 388.3, 393; 428/423.1, 425.1, 425.5 [IMAGE AVAILABLE]

US PAT NO: 5,021,535 [IMAGE AVAILABLE]

L18: 23 of 85

ABSTRACT:

The component polyol/polyisocyanate composition useful in forming an abrasion resistant polyurethane automotive undercoating. The polyol component is unmodified castor oil or castor oil modified with cyclohexanone-formaldehyde condensate. The modified castor oil may be further modified by adding the reaction product of neopentyl glycol and adipic acid. The polyisocyanate component comprises an MDI-based mixture containing polyisocyanate prepolymers based on alkylene oxides.

24. 4,958,148, Sep. 18, 1990, Contrast enhancing transparent touch panel device; Jan B. Olson, 345/174; 178/18.01; 200/5A, 512; 341/22; 348/834;

359/601 [IMAGE AVAILABLE]

US PAT NO: 4,958,148 [IMAGE AVAILABLE]

L18: 24 of 85

ABSTRACT:

A contrast enhancing, substantially transparent touch panel device comprises a static element, a dynamic element and a microweave screen of a fine mesh of fine dark-colored filaments embedded within a clear adhesive layer and incorporated as an integral part of the dynamic element of the panel. Preferably there is no air gap between the front of the device and the conductive surface of the dynamic element. The device can comprise at least one layer of transparent colored coating for light attenuation, color-selective light filtering, and tint correction.

25. 4,950,525, Aug. 21, 1990, Elastomeric retroreflective sheeting; Terry R. Bailey, 428/164; 156/276; 359/538; 428/161, 325, 344, 423.3, 425.8, 913 [IMAGE AVAILABLE]

US PAT NO: 4,950,525 [IMAGE AVAILABLE]

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US PAT NO: 4,950,525 [IMAGE AVAILABLE]

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ABSTRACT:

Elastomeric embedded-lens retroreflective sheeting comprises a monolayer of non-stretchable microspheres; a sheet in which the microspheres are embedded which comprises a spacing layer of transparent elastomeric material underlying the back surface of the microspheres and a cover layer of transparent elastomeric material covering the front surface of the

microspheres; and a specularly reflective layer disposed on the back surface of the spacing layer.

26. 4,943,237, Jul. 24, 1990, Thermoset-thermoplastic molded article for dental restoration; Thomas T. Bryan, 433/213; 264/16; 428/15, 542.8 [IMAGE AVAILABLE]

US PAT NO: 4,943,237 [IMAGE AVAILABLE]

L18: 26 of 85

ABSTRACT:

For use in making dental restorations, a model is prepared by taking an

US PAT NO: 4,943,237 [IMAGE AVAILABLE]

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intra-oral impression and molding in the impression a replica model made from the thermosetting resin and a thermoplastic resin. The thermosetting resin provides a tough, heat- and abrasion-resistant surface. Heat from the molten thermoplastic resin accelerates the curing of the thermosetting resin.

27. 4,891,271, Jan. 2, 1990, Bilayer windshield and preformed two-ply sheet for use therein; Jean L. Bravet, et al., 428/423.1, 423.3, 425.6 [IMAGE AVAILABLE]

US PAT NO: 4,891,271 [IMAGE AVAILABLE]

L18: 27 of 85

ABSTRACT:

Preformed, two-ply, optical, energy-absorbing, flexible polyurethane sheet including a self-healing surface and a surface which is adhesive under the influence of heat and pressure; bilayer glazing laminates and bilayer automotive safety windshields including said two-ply sheet; said two-ply sheet comprises a self-healing ply and an energy-absorbing adhesive polyurethane ply which is prepared preferably by reactive-casting on a

US PAT NO: 4,891,271 [IMAGE AVAILABLE]

L18: 27 of 85

horizontal support and formed preferably from a polyisocyanate monomer including from about 2 to about 10 wt. % of urea groups.

28. 4,855,052, Aug. 8, 1989, Foam-containing polyurethane (urea) compositions and process for the preparation thereof; Arthur Reischl, 210/632, 679 [IMAGE AVAILABLE]

US PAT NO: 4,855,052 [IMAGE AVAILABLE]

L18: 28 of 85

ABSTRACT:

This invention relates to polyurethane(urea) compositions which contain foam

and which are preferably cationically modified, contain non-abrasively bonded fillers and have a very high water absorbability (WAF). Production is effected by reacting isocyanate-terminated prepolymers with a quantity of water far exceeding the stoichiometric quantity in the presence of foams in particle or film form. The reaction mixture may also contain lignite powder and/or peat, other inorganic and organic fillers and/or biomasses (living cells, living bacteria, enzymes).

US PAT NO: 4,855,052 [IMAGE AVAILABLE]

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The polyurethane(urea) compositions contain up to 95% by weight of foam particles and may contain further fillers (preferably lignite and/or peat). The compositions are swollen and have a high water content during production. Their water absorbability (WAF) when suspended in water is 33 to 97% by weight of water. They can be used as carriers in microbic synthesis processes for the production of complicated organic compounds (when they have incorporated biomasses) as special carriers for the growth of plants, as filter agents or as adsorbents for non water-soluble liquids [for example, crude oil or petrol].

29. 4,854,875, Aug. 8, 1989, Extra-oral dental restoration; Michael M. Dziki, et al., 433/213; 264/16, 18 [IMAGE AVAILABLE]

US PAT NO: 4,854,875 [IMAGE AVAILABLE]

L18: 29 of 85

ABSTRACT:

For use in making dental restorations, a model is prepared by taking an intra-oral impression and molding in the impression a replica model made from

US PAT NO: 4,854,875 [IMAGE AVAILABLE]

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thermoplastic resin and an optional thermoset resin. The model includes a flexible support adhered to the underside of the model. When the model is flexed or cut, cracks will form through the replica gingival tissue between adjacent replica teeth. The flexible support acts as a hinge to provide access to interproximal spaces between replica teeth. A preferred flexible support is a layer of a tough and flexible second thermoplastic resin.

30. 4,850,871, Jul. 25, 1989, Method for thermoset-thermoplastic molded article; Thomas T. Bryan, 433/213; 264/16, 19 [IMAGE AVAILABLE]

US PAT NO: 4,850,871 [IMAGE AVAILABLE]

L18: 30 of 85

ABSTRACT:

For use in making dental restorations, a model is prepared by taking an intra-oral impression and molding in the impression a replica model made from

a thermosetting resin and a thermoplastic resin. The thermosetting resin provides a tough, heat- and abrasion-resistant surface. Heat from the molten thermoplastic resin accelerates the curing of the thermosetting resin.

US PAT NO: 4,850,871 [IMAGE AVAILABLE]

L18: 30 of 85

31. 4,844,983, Jul. 4, 1989, Coated articles and methods for the preparation thereof; Robert S. R. Parker, et al., 428/425.6, 913 [IMAGE AVAILABLE]

US PAT NO: 4,844,983 [IMAGE AVAILABLE]

L18: 31 of 85

ABSTRACT:

Glass or plastics substrates which in use are susceptible to misting and which have on at least one surface thereof an antimist coating. The coating is formed from a hydrophilic polymer which comprises a hydrophilic polyurethane which contains from 35 to 60% by weight of water when hydrated and which has a thickness of from 3 μm to 50 μm in its anhydrous state. Substrates in which the coating comprises a first layer formed from a polyurethane which contains from 0 to 35% by weight of water when hydrated and in which a second and subsequent layers are formed from a polyurethane which contains 60 to 90% by weight of water are also described. Methods for forming the coatings are also described.

32. 4,843,105, Jun. 27, 1989, Process for the preparation of filler-containing, anionically modified polyurethane (urea) compositions, the polyurethane (urea) compositions so-obtained, and the use thereof; Artur Reischl, et al., 521/54; 210/610; 435/182; 521/101, 109.1; 524/702, 705, 839 [IMAGE AVAILABLE]

US PAT NO: 4,843,105 [IMAGE AVAILABLE]

L18: 32 of 85

ABSTRACT:

The invention is directed to the formation of filler containing anionically modified polyurethane (urea) compositions by reacting suitable polyurethane (urea) forming ingredients in the presence of from 5 to 97% by weight of fillers selected from the group consisting of

- (i) finely divided or lumpy foam particles,
- (ii) fossile lignocelluloses,
- (iii) carbon powder, and
- (iv) mixtures thereof,

said filler-containing polyurethane (urea) having a water absorbability of from 33 to 97% by weight, and having an anionic group content of from 10 to 3000 milliequivalents of anionic groups and/or groups capable of anionic

US PAT NO: 4,843,105 [IMAGE AVAILABLE] L18: 32 of 85
group formation per 1000 grams of said polyurethane (urea) components.

33. 4,820,830, Apr. 11, 1989, Certain hydroxyalkyl carbamates, polymers and uses thereof; Werner J. Blank, 560/158; 525/409, 440, 504, 512; 528/369, 370; 560/115, 159 [IMAGE AVAILABLE]

US PAT NO: 4,820,830 [IMAGE AVAILABLE] L18: 33 of 85

ABSTRACT:

This invention relates to certain polyamine hydroxyalkyl carbamate monomers, polymers and copolymers thereof and blends of the same with crosslinking film making agents and films thereof deposited on substrates.

34. 4,801,621, Jan. 31, 1989, Foam-containing polyurethane(urea) compositions and process for the preparation thereof; Artur Reischl, 521/53; 210/807; 435/41; 521/54, 55, 83, 84.1, 101, 102, 109.1, 905 [IMAGE AVAILABLE]

US PAT NO: 4,801,621 [IMAGE AVAILABLE] L18: 34 of 85

ABSTRACT:

This invention relates to polyurethane(urea) compositions which contain foam and which are preferably cationically modified, contain non-abrasively bonded fillers and have a very high water absorbability (WAF).

Production is effected by reacting isocyanate-terminated prepolymers with a quantity of water far exceeding the stoichiometric quantity in the presence of foams in particle or film form. The reaction mixture may also contain lignite powder and/or peat, other inorganic and organic fillers and/or biomasses (living cells, living bacteria, enzymes).

The polyurethane(urea) compositions contain up to 95% by weight of foam particles and may contain further fillers (preferably lignite and/or peat).

The compositions are swollen and have a high water content during production. Their water absorbability (WAF) when suspended in water is 33 to 97% by weight of water. They can be used as carriers in microbic synthesis processes for the production of complicated organic compounds (when they have incorporated biomasses) as special carriers for the growth of plants, as filter agents or as adsorbents for non water-soluble liquids [for example,

US PAT NO: 4,801,621 [IMAGE AVAILABLE] L18: 34 of 85
crude oil or petrol].

35. 4,784,916, Nov. 15, 1988, Bilayer windshield and preformed two-ply sheet for use therein; Jean L. Bravet, et al., 428/423.1; 156/102, 106; 427/407.2; 428/423.3, 425.6 [IMAGE AVAILABLE]

US PAT NO: 4,784,916 [IMAGE AVAILABLE]

L18: 35 of 85

ABSTRACT:

Preformed, two-ply, optical, energy-absorbing, flexible polyurethane sheet including a self-healing surface and a surface which is adhesive under the influence of heat and pressure; bilayer glazing laminates and bilayer automotive safety windshields including said two-ply sheet; said two-ply sheet comprises a self-healing ply and an energy-absorbing adhesive polyurethane ply which is prepared preferably by reactive-casting on a horizontal support and formed preferably from a polyisocyanate monomer including from about 2 to about 10 wt. % of urea groups.

36. 4,767,671, Aug. 30, 1988, Coated articles and methods for the preparation thereof; Robert S. R. Parker, et al., 428/412, 423.3, 423.7, 480, 913; 528/66, 76, 77 [IMAGE AVAILABLE]

US PAT NO: 4,767,671 [IMAGE AVAILABLE]

L18: 36 of 85

ABSTRACT:

Glass or plastics substrates which in use are susceptible to misting and which have on at least one surface thereof an antimist coating. The coating is formed from a hydrophilic polymer which comprises a hydrophilic polyurethane which contains from 35 to 60% by weight of water when hydrated and which has a thickness of from 3 μm to 50 μm in its anhydrous state. Substrates in which the coating comprises a first layer formed from a polyurethane which contains from 0 to 35% by weight of water when hydrated and in which a second and subsequent layers are formed from a polyurethane which contains 60 to 90% by weight of water are also described. Methods for forming the coatings are also described.

37. 4,740,577, Apr. 26, 1988, Energy polymerizable polyurethane precursors; Robert J. DeVoe, et al., 528/51; 521/50.5; 522/28, 29, 64, 66, 174; 523/123; 528/52, 56, 59 [IMAGE AVAILABLE]

US PAT NO: 4,740,577 [IMAGE AVAILABLE]

L18: 37 of 85

ABSTRACT:

A polymerizable composition of polyurethane precursors is rapidly cured using energy-activated catalysts to provide polyurethanes. The polymerizable composition is comprised of polyisocyanates with polyols, fillers, coating aids, adjuvants, and a latent catalyst. Latent catalysts are ionic salts of organometallic complex cations. The cured polyurethanes are useful as abrasion resistant coatings, protective finishes such as

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furniture finishes and floor tiles, binders for magnetic media, adhesives, and have various applications in industries which use photoresist technologies such as graphic arts and electronics, and in the paint and ink industries.

38. 4,734,439, Mar. 29, 1988, Foam-containing polyurethane(urea) compositions and process for the preparation thereof; Artur Reischl, 521/54; 210/807; 435/41; 521/83, 84.1, 109.1, 905 [IMAGE AVAILABLE]

US PAT NO: 4,734,439 [IMAGE AVAILABLE]

L18: 38 of 85

ABSTRACT:

This invention relates to polyurethane(urea) compositions which contain foam and which are preferably cationically modified, contain non-abrasively bonded fillers and have a very high water absorbability (WAF).

Production is effected by reacting isocyanate-terminated prepolymers with a quantity of water far exceeding the stoichiometric quantity in the presence of foams in particle or film form. The reaction mixture may also contain lignite powder and/or peat, other inorganic and organic fillers and/or biomasses (living cells, living bacteria, enzymes).

The polyurethane(urea) compositions contain up to 95% by weight of foam particles and may contain further fillers (preferably lignite and/or peat). The compositions are swollen and have a high water content during production. Their water absorbability (WAF) when suspended in water is 33 to 97% by weight of water. They can be used as carriers in microbic synthesis processes for the production of complicated organic compounds (when they have incorporated biomasses) as special carriers for the growth of plants, as filter agents or as adsorbents for non water-soluble liquids [for example,

US PAT NO: 4,734,439 [IMAGE AVAILABLE]
crude oil or petrol].

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39. 4,731,289, Mar. 15, 1988, Abrasion resistant polyurethane coatings for rigid plastics; Charles R. Coleman, 428/334; 264/171.13; 428/412, 423.1, 423.3, 423.7, 424.4 [IMAGE AVAILABLE]

US PAT NO: 4,731,289 [IMAGE AVAILABLE]

L18: 39 of 85

ABSTRACT:

A method is disclosed for casting a colorless, single phase liquid reaction mixture comprising an aliphatic diisocyanate and a polyester polyol against a rigid transparent plastic and curing at a sufficiently rapid rate at temperatures of about 175.degree. to 275.degree. F. (about 79.degree. to 135.degree. C.) to form a relatively soft, resilient, abrasion resistant

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branched polyurethane coating without warpage or deterioration of the rigid plastic. The polyesterurethane coatings disclosed are characterized by durometer values at 70.degree. F. between Shore A 50 and Shore D 80, and molecular weights between branch points between 1000 and 13,000.

US PAT NO: 4,731,289 [IMAGE AVAILABLE]

L18: 39 of 85

40. 4,720,535, Jan. 19, 1988, Moisture tempered, storage stable single component polyurethane systems and their application; Gisbert Schleier, et al., 528/59 [IMAGE AVAILABLE]

US PAT NO: 4,720,535 [IMAGE AVAILABLE]

L18: 40 of 85

ABSTRACT:

This invention relates to moisture tempered, storage stable, single component polyurethane systems prepared from a polyurethane prepolymer derived from an aromatic polyisocyanate, and a polyaldimine, which are used for preparing polyurethane elastomers or polyurethane coatings having improved temperature resistance.

41. 4,716,210, Dec. 29, 1987, Use of liquid, cold-hardening polyurethane-urea-forming components for corrosion-inhibiting, wear-resistant coatings on metal and plastics surfaces and moldings and on stone and

concrete; Gerhard Trummelmeyer, et al., 528/75; 428/423.1; 521/137; 528/64, 906 [IMAGE AVAILABLE]

US PAT NO: 4,716,210 [IMAGE AVAILABLE]

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ABSTRACT:

This invention relates to special combinations of polyurethane-urea-forming starting components which are suitable for corrosion-inhibiting wear prevention by casting, centrifugal casting or spraying. Said components are liquid, relatively low viscosity mixtures of polymer-containing or polyadduct-containing polypropylene oxide polyols and/or ethylene oxide-containing polypropylene oxide polyols having a small content of special, low-melting, readily soluble aromatic diamines and tertiary amine catalysts as component (A) which are reacted at room temperature with liquid polyisocyanates based on diphenyl methane diisocyanate or their NCO-prepolymers with polyether polyols as components (B).

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42. 4,677,030, Jun. 30, 1987, Magnetic storage medium; Johannes Gerum, et al., 428/425.9; 252/62.54; 427/128; 428/328, 329, 694B, 694BU, 694BY, 900 [IMAGE AVAILABLE]

US PAT NO: 4,677,030 [IMAGE AVAILABLE]

L18: 42 of 85

ABSTRACT:

What is claimed is a magnetic storage medium in which the polyurethane binder system forms a three-dimensional network independently of reactive low molecular weight substances present on the magnetic pigment or in the dispersion and the production of such a storage medium. The binder in the colored magnetic layer consists of a reaction product of polyisocyanates having an average functionality of from 2.1 to 4 (A) with predominantly difunctional aromatic amino-terminated polyurethanes having an average molecular weight of at least 10,000 (B) and optionally one or more hydroxyl group-containing polyesters having an OH number of from 100 to 450 (C), and/or predominantly difunctional aromatic polyamines having a molecular weight of from 100 to 400 (D) the ratio of isocyanate groups present in (A) to the isocyanate reactive groups present in (B), (C) and (D) being from 0.3:1 to 20:1, preferably from 0.8:1 to 20:1. With this binder system, it has been possible to achieve direct linkage of the polymeric binder chains and to suppress side reactions. This has enabled a soft polyurethane agent to be used, with the result of smooth dispersion of the magnetic lacquer and hence

US PAT NO: 4,677,030 [IMAGE AVAILABLE]

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increase in the signal/noise ratio of the magnetic recording medium. The subsequent cross-linking which takes place according to the present invention enables the mechanical properties of the recording medium to be adjusted to the exact result required after the magnetic lacquer has been applied to a support.

43. 4,671,838, Jun. 9, 1987, Preparation of bilayer laminate and preformed sheet for use therein; Jean L. Bravet, et al., 156/246, 99; 264/331.19; 428/412, 423.1, 424.4, 425.6; 528/59, 61 [IMAGE AVAILABLE]

US PAT NO: 4,671,838 [IMAGE AVAILABLE]

L18: 43 of 85

ABSTRACT:

Preformed, energy-absorbing, scratch resistant, optical, flexible, and self-healing polyurethane sheets, which are adhesive under the influence of heat and pressure; bilayer glazing laminates and bilayer safety windshields including said sheets; wherein said polyurethane sheet is prepared preferably by reactive-casting on a horizontal support and formed preferably from a

US PAT NO: 4,671,838 [IMAGE AVAILABLE]

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polyisocyanate monomer including about 2 to about 10 wt. % of urea groups.

44. 4,652,494, Mar. 24, 1987, Bilayer laminate and preformed sheet for use therein; Jean L. Bravet, et al., 428/423.1; 156/331.4, 331.7; 264/331.19; 428/412, 424.4, 425.6; 528/59, 67 [IMAGE AVAILABLE]

US PAT NO: 4,652,494 [IMAGE AVAILABLE]

L18: 44 of 85

ABSTRACT:

Preformed, energy-absorbing, scratch resistant, optical, flexible, and self-healing polyurethane sheets, which are adhesive under the influence of heat and pressure; bilayer glazing laminates and bilayer safety windshields including said sheets; wherein said polyurethane sheet is prepared preferably by reactive-casting on a horizontal support and formed preferably from a polyisocyanate monomer including about 2 to about 10 wt. % of urea groups.

45. 4,608,397, Aug. 26, 1986, Filler-containing polyurethane (urea) compositions prepared from prepolymers reacted with water in the presence of

lignite or peat; Artur Reischl, 521/101; 210/679; 435/35, 144, 174, 180; 523/123; 524/705, 785, 789, 791 [IMAGE AVAILABLE]

US PAT NO: 4,608,397 [IMAGE AVAILABLE]

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ABSTRACT:

The invention relates to a process for the production of polyurethane(urea) compositions which contain lignite and/or peat bound in an abrasion-proof manner, which are preferably modified cationically and which have a very high water absorbability. The compositions are produced by reacting isocyanate-terminated prepolymers, which are preferably cationically modified, and which preferably have a functionality of more than 2.1, with more than the stoichiometric quantity of water in the presence of lignite and/or peat and optionally in the presence of organic and/or inorganic fillers and biomasses (living cells, living bacteria or enzymes). The corresponding polyurethane(urea) compositions contain up to 95% by weight of lignite and/or peat in the filler-containing polyurethane(urea) composition and are already swollen from production. The water absorbability (WAF) value thereof when suspended in water is from 33 to 97% by weight of water. The compositions can be used, in a form optionally containing biomasses

US PAT NO: 4,608,397 [IMAGE AVAILABLE]

L18: 45 of 85

incorporated therein, as carriers in microbial synthesis processes for the production of complicated organic compounds, or as carriers for the growth of plants.

46. 4,595,610, Jun. 17, 1986, Curable silicone compositions for the protection of polyurethane foam; Kenneth C. Fey, et al., 428/319.3; 427/244,

386, 387; 428/425.5, 447; 521/112; 524/588, 860, 861, 862, 863; 528/15, 18, 21, 24, 33 [IMAGE AVAILABLE]

US PAT NO: 4,595,610 [IMAGE AVAILABLE]

L18: 46 of 85

ABSTRACT:

There is disclosed a room temperature curing silicone for protecting polyurethane foam. The silicone coating provides protection from ultraviolet light, water penetration, and mechanical damage. The silicone coating comprises a particular organosilicon resin, an hydroxy-ended silicone polymer, fillers, and an organotin catalyst.

47. 4,588,398, May 13, 1986, Catheter tip configuration; Charles W. Daugherty, et al., 604/265, 164, 264 [IMAGE AVAILABLE]

US PAT NO: 4,588,398 [IMAGE AVAILABLE]

L18: 47 of 85

ABSTRACT:

A specific configuration for an over the needle catheter having a tapered outer wall and an angled introducer tip is disclosed. The catheter is molded of polyurethane material which is treated with a surface lubricant to ease the over the needle introduction of the catheter after venipuncture. The polyurethane material permits a minimal wall thickness for maximum flow with requisite strength and flexibility characteristics.

48. 4,584,229, Apr. 22, 1986, Glazing article; Claude Bourelrier, et al., 428/216; 296/84.1; 428/423.3, 425.6, 911 [IMAGE AVAILABLE]

US PAT NO: 4,584,229 [IMAGE AVAILABLE]

L18: 48 of 85

ABSTRACT:

Glazing comprising a support, an interlayer of a polyurethane-polyurea having

US PAT NO: 4,584,229 [IMAGE AVAILABLE] L18: 48 of 85
energy absorbing properties, and an outer layer comprising a material having self-healing properties.

49. 4,576,718, Mar. 18, 1986, Use of water-absorbing, highly-filled polyurethane (urea) compositions for biological treatment of waste-containing liquids; Artur Reischl, et al., 210/616, 151, 510.1, 617; 435/182; 521/159, 176 [IMAGE AVAILABLE]

US PAT NO: 4,576,718 [IMAGE AVAILABLE]

L18: 49 of 85

ABSTRACT:

The present invention relates to the use of non-floating, non-abrasive, highly-filled polyurethane (urea) compositions of high water-absorbability, which during their production contain no cells capable of growth as carriers for biomasses in the biological treatment of waste-containing liquids. These carriers have a filler content of greater than 15% by weight and less than 95% by weight (based on the moisture-free weight of the filler-containing polyurethanes). The fillers are selected from the group consisting of natural

US PAT NO: 4,576,718 [IMAGE AVAILABLE] L18: 49 of 85
materials containing finely-divided fossil lignocelluloses or the secondary products thereof (e.g., peat, lignite, mineral coal or coke), active carbon, finely-divided distillation residues, inorganic fillers, homogeneous or cellular plastics particles (and more particularly polyurethane foam (waste) particles) and mixtures thereof. The polyurethane (urea) is a hydrophilic and/or hydrophobic polyurethane(urea), and preferably contains cationic groups. These highly-filled, polyurethane (urea) carriers have a water-absorbability exceeding 33% by weight of water in the swollen carrier. These carriers allow improved treatment of industrial and municipal liquid waste to be achieved in biologically-operating treatment plants. Treated waste which has reduced toxicity, a diminished smell, improved clarity and a very small residual content of organic, decomposable material is obtained due to the increased decomposition effect thereof.

50. 4,560,708, Dec. 24, 1985, Polyisocyanurate/polyurethane elastomers based on suspensions of crystalline polyesters and polyhydroxyl compounds; Peter Horn, et al., 521/137; 252/182.13, 182.18, 182.24; 521/902; 525/450, 451, 454 [IMAGE AVAILABLE]

US PAT NO: 4,560,708 [IMAGE AVAILABLE] L18: 50 of 85

ABSTRACT:

Crystallite suspensions containing from 3 to 70 weight percent of a crystalline, ethylenically unsaturated polyester prepared through condensation polymerization, and having a molecular weight factor per double bond of 154.4 to 408, as the dispersed phase, and from 30 to 97 weight percent of a polyhydroxyl compound having a functionality of from 2 to about 8, a hydroxyl number of from 20 to 800, and a melting point of less than 30.degree. C. as the coherent phase are suitable for preparing non-cellular and cellular polyurethane- or polyurethane group-containing polyisocyanurate foams.

51. 4,543,393, Sep. 24, 1985, Mixtures, for polyurethane adhesives, which consist of polyols and/or polyamines and polyisocyanates, are liquid at

room temperature, have a long shelf life and can be activated by heat;
Rainer Blum, et al., 525/124; 528/45, 49, 73, 75, 85, 902 [IMAGE AVAILABLE]

US PAT NO: 4,543,393 [IMAGE AVAILABLE]

L18: 51 of 85

ABSTRACT:

Mixtures which are liquid at room temperature, have a long shelf life and can be activated by heat and which comprise

(A) polyols and/or polyamines, component (A) having a viscosity of less than 100 Pa.s at room temperature, the OH number being less than 112 and the mean functionality of the starting materials being from 1.1 to 6, and

(B) polyisocyanates which are dispersed in (A), are stabilized to (A) as a result of a phase-separating deactivation at the surface of the dispersed particles, and are present in an amount such that there are from 0.1 to 2 equivalents of the total isocyanate present in the polyisocyanate per equivalent of hydroxyl or amino groups of component (A), are particularly useful for contact adhesives.

52. 4,503,150, Mar. 5, 1985, Polyurethane foam and a microbiological metabolizing system; Rocco P. Triolo, 435/41, 174, 182; 521/52, 159 [IMAGE AVAILABLE]

US PAT NO: 4,503,150 [IMAGE AVAILABLE]

L18: 52 of 85

ABSTRACT:

The present invention provides a polyurethane foam having significantly improved longevity in a microbiological process in which the foam functions as a support medium for microorganism in a water system containing nutrients for the microorganisms. Also provided is a method of making said improved foam and an improved microbiological metabolizing (e.g., digestion) process employing said improved foam. The present invention is based upon the discovery that enhanced foam life in such a watery, abrasive environment is substantially enhanced if the polyurethane foam formulation has a urea/urethane ratio of less than about 5 and preferably a urethane index of about 100.

53. 4,481,309, Nov. 6, 1984, Process for the preparation of cellular and non-cellular polyurethanes; Wolfgang Straehle, et al., 521/172, 173; 528/76, 77, 79 [IMAGE AVAILABLE]

US PAT NO: 4,481,309 [IMAGE AVAILABLE]

L18: 53 of 85

ABSTRACT:

The invention relates to a process for the preparation of cellular or non-cellular polyurethanes through the reaction of organic polyisocyanates with a polyether-polyester polyol component containing di- to tetrafunctional

polyether-polyester polyols having hydroxyl numbers of from 10 to 200, which are themselves prepared by esterifying conventional di- to tetrafunctional polyether polyols with carboxylic acid anhydrides, preferably aromatic carboxylic acid anhydrides, in the presence of selected catalysts to form carboxylic acid half esters, and oxyalkylating the resulting carboxylic acid half esters with alkylene oxides in the presence of N-methylimidazole, triethylene diamine, triphenylphosphine or mixtures thereof with thiodialkylene glycol as catalysts.

54. 4,356,273, Oct. 26, 1982, Fluorochemical foam stabilizer and foamed polyurethanes made therewith; Fredrich A. Soch, 521/114, 115, 116, 164, 174 [IMAGE AVAILABLE]

US PAT NO: 4,356,273 [IMAGE AVAILABLE]

L18: 54 of 85

ABSTRACT:

Active hydrogen-containing fluorochemical is used as a foam stabilizer in preparing polyurethane foams. For example, rigid or flexible polyurethane foams with high or low density and uniform cellular structure are prepared using fluoroaliphatic radical-substituted poly(oxyalkylene) polyols as foam stabilizers.

55. 4,301,053, Nov. 17, 1981, Polyurethane resin coating composition; Austin A. Wolfrey, 524/104; 428/412, 423.1, 423.7, 424.4, 425.8; 524/906 [IMAGE AVAILABLE]

US PAT NO: 4,301,053 [IMAGE AVAILABLE]

L18: 55 of 85

ABSTRACT:

Two-package waterborne polyurethane resin coating compositions which, when applied to a solid substrate produce an adherent, abrasion resistant coating thereon, are disclosed herein. The coating compositions essentially

US PAT NO: 4,301,053 [IMAGE AVAILABLE]

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include a small amount of N-methylpyrrolidone to improve adhesion to non-polar thermoplastic substances and are prepared by providing a carboxyl group-containing polyurethane in aqueous dispersion and, optionally, a water dispersible acrylic, as a first part; and using a trifunctional aziridine compound to make the second part of the two package system.

56. 4,289,892, Sep. 15, 1981, Fluorochemical foam stabilizer and foamed polyurethanes made therewith; Fredrich A. Soch, 560/26; 521/99, 113, 114, 115; 544/159, 180, 216; 560/29, 30, 83, 101, 105, 112, 115, 116, 125, 127, 158, 160, 161; 564/1, 57, 60, 80, 96, 191, 197, 209, 461, 500, 501, 505; 568/27, 32, 33, 46, 606, 607, 611, 612, 615 [IMAGE AVAILABLE]

US PAT NO: 4,289,892 [IMAGE AVAILABLE]

L18: 56 of 85

ABSTRACT:

Active hydrogen-containing fluorochemical is used as a foam stabilizer for polyurethane foams. For example, rigid or flexible polyurethane foams with high or low density and uniform cellular structure are prepared using

US PAT NO: 4,289,892 [IMAGE AVAILABLE]

L18: 56 of 85

fluoroaliphatic radical-substituted poly(oxyalkylene) polyols as foam stabilizers.

57. 4,198,330, Apr. 15, 1980, Polyurethane latices modified by a vinyl polymer; Samuel Kaizerman, et al., 523/501; 524/500, 513; 525/185 [IMAGE AVAILABLE]

US PAT NO: 4,198,330 [IMAGE AVAILABLE]

L18: 57 of 85

ABSTRACT:

A composition of matter is provided comprising a polyurethane latex and a polymer of at least one vinyl monomer, said polymer having been obtained by free radical polymerization of said monomer in the presence of the latex and being characterized as a hard, resinous material at temperatures below about 60.degree. C.

58. 4,186,118, Jan. 29, 1980, Process for the preparation of modified aqueous synthetic resin dispersions; Artur Reischl, et al., 524/591; 525/453,

457; 528/52 [IMAGE AVAILABLE]

US PAT NO: 4,186,118 [IMAGE AVAILABLE]

L18: 58 of 85

ABSTRACT:

A process for preparing modified aqueous synthetic resin dispersions, comprising introducing organic diisocyanates which are liquid at room temperature into polyurethane-containing, non-sedimenting, aqueous synthetic resin dispersions, optionally in the presence of catalysts which accelerate the isocyanate polyaddition reaction and/or the dimerization of isocyanate groups and/or the carbodiimidization of isocyanate groups and/or the trimerization of isocyanate groups, mixing the organic diisocyanate with the aqueous dispersion at a temperature at which no visible foaming occurs, maintaining the temperature after addition of all the diisocyanate until at least 50% of the isocyanate groups in the added diisocyanate have undergone reaction and, if desired, completing the reaction by subsequently heating to temperatures up to 100.degree. C.

These modified aqueous dispersions contain dispersed latex particles which are enveloped with polyurea formed from the diisocyanates. These modified dispersions are useful as water-resistant surface coatings and leather

US PAT NO: 4,186,118 [IMAGE AVAILABLE] L18: 58 of 85
dressings which are abrasion resistant in the wet.

59. 4,183,836, Jan. 15, 1980, Aqueous polyurethane dispersions; Harry W. Wolfe, Jr., 524/770, 840; 528/61, 65 [IMAGE AVAILABLE]

US PAT NO: 4,183,836 [IMAGE AVAILABLE] L18: 59 of 85

ABSTRACT:

A water-based polyurethane dispersion is prepared by mixing an aliphatic diisocyanate with three critical active hydrogen compounds, to form a prepolymer containing carboxyl groups and free isocyanate groups, then dispersing the prepolymer in an aqueous medium containing a tertiary amine, which converts the carboxyl groups to carboxylate ions, and a diamine, which chain-extends the prepolymer through its --NCO groups. These aqueous dispersions are storage-stable for at least several months and are useful in many coating applications, among others, for coating textile materials.

60. 4,134,883, Jan. 16, 1979, Abrasion resistant polyurethane article

having a high rolling coefficient of friction; Morris A. Mendelsohn, et al., 528/63; 198/335, 835; 428/425.8 [IMAGE AVAILABLE]

US PAT NO: 4,134,883 [IMAGE AVAILABLE] L18: 60 of 85

ABSTRACT:

An abrasion resistant traction article is made, comprising a cured, high traction, extended polyurethane composition, comprising the cured reaction product of: (1) 100 parts of a prepolymer made from polyoxytetramethylenediol, polyoxyisopropylenediol and tolylene diisocyanate and (2) 8.0 parts to 10.0 parts of methylene bis(o-chloroaniline), acting as a chain extender.

61. 4,133,144, Jan. 9, 1979, Abrasive disc of polyurethane bonded metallic wool; William E. Early, et al., 51/294, 295, 298; 264/128 [IMAGE AVAILABLE]

US PAT NO: 4,133,144 [IMAGE AVAILABLE] L18: 61 of 85

ABSTRACT:

A soft abrasive tool is disclosed as comprising a solid molded mixture of

US PAT NO: 4,133,144 [IMAGE AVAILABLE]

L18: 61 of 85

edetermined quantities of an aluminum wool material and a catalyst setting elastomeric polyurethane binder material, the unique combination of which has been mixed, molded under pressure, and cured at room temperature in such manner as to have a disc-like, cup-like, or other predetermined geometrical configuration. A power source -- such as a motor or the like -- may be used to mechanically drive the aforesaid soft abrasive tool, so that it will cut, grind, and remove polyurethane paint, polysulfide sealant, and other soft coatings from aluminum aircraft skin without damaging the substrate aluminum thereof when held thereagainst.

62. 4,101,529, Jul. 18, 1978, Hard, optically clear polyurethane articles; Vernon G. Ammons, 528/67, 85 [IMAGE AVAILABLE]

US PAT NO: 4,101,529 [IMAGE AVAILABLE]

L18: 62 of 85

ABSTRACT:

Polyurethane compositions characterized by being heat curable to yield hard, impact-resistant articles having a high heat distortion temperature are

US PAT NO: 4,101,529 [IMAGE AVAILABLE]

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disclosed. The cured polyurethane articles are transparent and also hydrolytic and UV light stable as well as being abrasion resistant. The polyurethane is prepared from a cycloaliphatic polyisocyanate, low molecular weight active hydrogen-containing material and optionally a polycarbonate diol. The weight percentage of the urethane moieties and the crosslinked density are carefully controlled so as to provide the proper balance of physical properties, particularly between hardness, flexibility and heat distortion temperature. The polyurethane articles are particularly useful in glazing applications such as aircraft glazing.

63. 4,081,581, Mar. 28, 1978, Laminated aircraft windshield; Harry E. Littell, Jr., 428/138; 52/308, 786.12; 244/121, 129.3; 428/34, 38, 99, 137, 213, 214, 220, 412, 425.6, 426, 447, 522, 911 [IMAGE AVAILABLE]

US PAT NO: 4,081,581 [IMAGE AVAILABLE]

L18: 63 of 85

ABSTRACT:

Disclosed are laminated windshields, preferably having an outer protective

US PAT NO: 4,081,581 [IMAGE AVAILABLE]

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sheet of glass or plastic, at least two relatively thin structural sheet members of polycarbonate resin and interlayers of elastomeric resin

interposed between and adhering said sheet and sheet members together. The thickness and material composition of the structural sheet members and interlayers are selectively correlated so that they function as an efficient energy absorber over a wide range of temperatures, such that forces emanating from a predesigned or preestablished impact on the outer sheet member are dissipated without penetration of the windshields.

64. 4,039,720, Aug. 2, 1977, Laminated windshield with improved innerlayer; Joseph Cherenko, et al., 428/425.6; 156/272.2, 275.5; 264/494; 427/519, 520; 428/38, 409, 426, 430, 437; 522/46, 68, 162, 163, 165, 174; 528/83 [IMAGE AVAILABLE]

US PAT NO: 4,039,720 [IMAGE AVAILABLE]

L18: 64 of 85

ABSTRACT:

Safety glass is made by laminating to a ply of glass a polyurethane film

US PAT NO: 4,039,720 [IMAGE AVAILABLE]

L18: 64 of 85

incorporating a photoinitiator. The exposed surface of the film is irradiated with ultraviolet light which activates the photoinitiator which in turn initiates crosslinking of the polymer. The polymer film retains its desirable mechanical and optical properties while the crosslinked surface has improved solvent-abrasion resistant.

65. 4,028,306, Jun. 7, 1977, Urea or carbonamide containing diisocyanate polyaddition products with phosphoric ester substituents; Kuno Wagner, et al., 528/61, 72; 987/160 [IMAGE AVAILABLE]

US PAT NO: 4,028,306 [IMAGE AVAILABLE]

L18: 65 of 85

ABSTRACT:

The present invention relates to linear, film-forming diisocyanate polyaddition products soluble in lacquer solvents which contain 10 to 69 wt. % of structural units of the formula: ##STR1## and processes for producing such diisocyanate polyaddition products. The polymer produced may be polyureas, polyhydrazocarbonamide, a polyurethane polyurea, polyurethane

US PAT NO: 4,028,306 [IMAGE AVAILABLE]

L18: 65 of 85

polyhydrazocarbonamides, polyurea polyhydrazocarbonamides or polyurethane polyurea polyhydrazocarbonamides. These diisocyanate polyaddition products are useful for the production of surface coatings, lacquer coatings and impregnations.

66. 4,017,428, Apr. 12, 1977, Abrasion resistant, non-discoloring

polyurethane foams and method of making; Gerald A. Capocci, 521/112, 159, 160, 176 [IMAGE AVAILABLE]

US PAT NO: 4,017,428 [IMAGE AVAILABLE]

L18: 66 of 85

ABSTRACT:

Polyurethane foams having high resistance to abrasion, discoloration, and rinkage and having high densities are produced by reacting a polyether diol with a cycloaliphatic diisocyanate, or with a prepolymer of a polyether diol and a cycloaliphatic diisocyanate, and one or more curing agents in the presence of small proportions of water to serve as a blowing agent, a surfactant, and a catalyst.

US PAT NO: 4,017,428 [IMAGE AVAILABLE]

L18: 66 of 85

67. 4,013,806, Mar. 22, 1977, Manufacture of thin layers of polyurethane elastomers; Otto Volkert, et al., 427/517, 393.5, 520, 521; 522/90, 97, 174; 525/440, 445, 455 [IMAGE AVAILABLE]

US PAT NO: 4,013,806 [IMAGE AVAILABLE]

L18: 67 of 85

ABSTRACT:

A process for the manufacture of thin layers based on polyurethane elastomers. A liquid reaction mixture essentially consisting of (A) polyesters, polyethers, polyester urethanes or polyether urethanes, all of which contain at least two hydroxyl groups in the molecule, and diisocyanates or (B) prepolymers obtained from the hydroxyl-containing compounds mentioned under (A) above with an excess of diisocyanates, said prepolymers containing at least two isocyanate groups in the molecule, and at least one of the compounds mentioned under (A) above which are capable of reacting with isocyanates, to which reaction mixture a minor quantity of substantially compatible monomers having at least two photocrosslinkable C--C multiple

US PAT NO: 4,013,806 [IMAGE AVAILABLE]

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bonds and optionally a photopolymerization initiator have been added, is applied to a substrate to form a coating thereon, which coating is then gelled by irradiation and finally thermocured. The process of the invention is particularly suitable for the continuous manufacture of uniformly thin layers of soft polyurethane elastomer showing narrow tolerance limits.

68. 4,009,315, Feb. 22, 1977, Chemical compositions and process; Lawrence W. Healy, et al., 428/316.6, 299.7, 338, 904 [IMAGE AVAILABLE]

US PAT NO: 4,009,315 [IMAGE AVAILABLE]

L18: 68 of 85

ABSTRACT:

Leather like compositions are produced by needling a fleece into a foam, compressing resulting product, depositing an elastomer into the compressed product, again compressing and optionally coating.

69. 4,006,052, Feb. 1, 1977, Diffusion method for depositing microporous film; Wu Lan Wang, 156/280; 118/257; 156/238, 305; 427/246, 342 [IMAGE

AVAILABLE]

US PAT NO: 4,006,052 [IMAGE AVAILABLE]

L18: 69 of 85

ABSTRACT:

Describes procedure for deposition of microporous grain layer in and on a substrate for the production of leather replacement products in which the deposition liquid diffuses upwardly through the substrate to deposit the polymer from a solution thereof which has been laminated and coated on the top surface of the substrate.

70. 3,989,869, Nov. 2, 1976, Process for making a polyurethane foam sheet and composites including the sheet; Hermann Neumaier, et al., 442/226; 264/45.8, 50, 331.19; 427/244, 412.1; 428/315.5, 319.7, 423.3, 424.6; 442/374; 521/67 [IMAGE AVAILABLE]

US PAT NO: 3,989,869 [IMAGE AVAILABLE]

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ABSTRACT:

A process is provided for making a polyurethane mechanical foam adapted to be

US PAT NO: 3,989,869 [IMAGE AVAILABLE]

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used as an interlayer between a plastic surface layer and a textile, the process involving frothing a non-ionic aqueous dispersion free from emulsifying agents of a polyurethane having a particle size of less than 1 micron, said dispersion containing more than 45% by weight polyurethane and a thickening agent whereby its viscosity of the dispersion is from about 10 to about 70 seconds with a Ford Cup having a 4 mm orifice to form a foamable mixture, spreading the frothed dispersion into a foamed film, and drying the resulting product.

71. 3,987,223, Oct. 19, 1976, Method of dressing leather; Kuno Wagner, et al., 427/389; 428/473 [IMAGE AVAILABLE]

US PAT NO: 3,987,223 [IMAGE AVAILABLE]

L18: 71 of 85

ABSTRACT:

Stable solutions of diisocyanate polyaddition products in a solvent mixture containing: a) inert organic solvents, b) primary and/or secondary alcohols and c) semiacetals of formaldehyde and the process of preparing such

US PAT NO: 3,987,223 [IMAGE AVAILABLE] L18: 71 of 85
solutions. Methods of dressing leather with said solutions are also disclosed.

72. 3,951,657, Apr. 20, 1976, Process for making a relief printing plate; Frank P. Recchia, et al., 430/306, 288.1, 328, 906 [IMAGE AVAILABLE]

US PAT NO: 3,951,657 [IMAGE AVAILABLE] L18: 72 of 85

ABSTRACT:

A photopolymerizable element for the preparation of relief printing plates. The element comprises an addition polymerizable monomer (e.g. trimethylolpropane trimethacrylate), a free radical initiator for polymerizing the monomer (e.g. benzophenone) and a polyester-based polyurethane binding agent which is the reaction product of 4,4'-methylenebis(phenyl isocyanate), a polycaprolactone diol having a molecular weight in the range of 1,000 to 2,500, and a mixture of at least two aliphatic diol extenders. Optionally the photopolymerizable element is provided with a support layer such as a polyester film or paper.

US PAT NO: 3,951,657 [IMAGE AVAILABLE] L18: 72 of 85
Processes for the preparation of relief printing plates from said elements are also disclosed.

73. 3,937,861, Feb. 10, 1976, Floor covering for athletic facility; Joseph L. Zuckerman, et al., 442/148, 402 [IMAGE AVAILABLE]

US PAT NO: 3,937,861 [IMAGE AVAILABLE] L18: 73 of 85

ABSTRACT:

A multilayer floor covering is provided which is suitable for use as a playing surface of an athletic facility. The floor covering comprises a composite needlepunched material in which a fiber batt bottom layer is needled into a support layer so that a portion of the fiber batt protrudes through the top of the support layer, a layer of polyurethane elastomer adhered to the composite needlepunched material and a top wear coating of polyurethane adhered to the layer of urethane elastomer.

74. 3,931,112, Jan. 6, 1976, Process for N-methylolating diisocyanate

polyaddition products; Kuno Wagner, et al., 525/440, 441, 452, 456, 459
[IMAGE AVAILABLE]

US PAT NO: 3,931,112 [IMAGE AVAILABLE]

L18: 74 of 85

ABSTRACT:

Formaldehyde and a polyaddition product of an organic diisocyanate and an organic compound having hydrogen atoms determinable by the Zerewitinoff method are reacted in a mixture of a tertiary alcohol and an inert organic solvent to form N-methylolated diisocyanate polyaddition products for use, inter alia, as coatings, lacquers and the like.

75. 3,912,516, Oct. 14, 1975, Photopolymer composition containing a polyurethane binding agent; Frank P. Recchia, et al., 430/271.1, 288.1, 531, 905, 906, 908; 522/174 [IMAGE AVAILABLE]

US PAT NO: 3,912,516 [IMAGE AVAILABLE]

L18: 75 of 85

ABSTRACT:

A photopolymerizable element for the preparation of relief printing plates.

US PAT NO: 3,912,516 [IMAGE AVAILABLE]

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The element comprises an addition polymerizable monomer (e.g. trimethylolpropane trimethacrylate), a free radical initiator for polymerizing the monomer (e.g. benzophenone) and a polyester-based polyurethane binding agent which is the reaction product of 4,4'-methylenebis(phenyl isocyanate), a polycaprolactone diol having a molecular weight in the range of 1,000 to 2,500, and a mixture of at least two aliphatic diol extenders. Optionally the photopolymerizable element is provided with a support layer such as a polyester film or paper. Processes for the preparation of relief printing plates from said elements are also disclosed.

76. 3,904,796, Sep. 9, 1975, Process for the production of polyurethane coatings; Bruno Zorn, et al., 427/389.9; 524/390, 768; 528/48, 61, 64, 73 [IMAGE AVAILABLE]

US PAT NO: 3,904,796 [IMAGE AVAILABLE]

L18: 76 of 85

US PAT NO: 3,904,796 [IMAGE AVAILABLE]

L18: 76 of 85

ABSTRACT:

A process for the production of polyurethane coatings having high resistance to light, solvents, bending and abrasion.

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The process consists of reacting prepolymers based on cycloaliphatic and aliphatic diisocyanates in equimolar quantitative ratios with special chain extending agents in soft solvents, adding special polyisocyanates to the resulting solutions and then letting the resulting tack free coating set until crosslinking takes place.

77. 3,880,784, Apr. 29, 1975, Solutions of diisocyanate polyaddition products which contain free semiacetals and which are stable in storage; Kuno Wagner, et al., 524/31, 39, 41, 589; 525/456 [IMAGE AVAILABLE]

US PAT NO: 3,880,784 [IMAGE AVAILABLE] L18: 77 of 85

ABSTRACT:

Stable solutions of diisocyanate polyaddition products in a solvent mixture

US PAT NO: 3,880,784 [IMAGE AVAILABLE] L18: 77 of 85
containing: (a) inert organic solvents, (b) primary and/or secondary alcohols and (c) semiacetals of formaldehyde and the process of preparing such solutions.

78. 3,880,782, Apr. 29, 1975, Fluorochemical foam stabilizer and foamed isocyanate-derived polymers made therewith; George M. Rambosek, 521/105, 120, 125, 128, 159, 172, 902 [IMAGE AVAILABLE]

US PAT NO: 3,880,782 [IMAGE AVAILABLE] L18: 78 of 85

ABSTRACT:

Active hydrogen-containing fluorochemical is used as a foam stabilizer for foamed isocyanate-derived polymers. For example, rigid or flexible polyurethane foams with high or low density and uniform cellular structure are prepared using fluoroaliphatic radical-substituted polyamines as foam stabilizers.

79. 3,872,050, Mar. 18, 1975, POLYURETHANE LIQUID CRYSTAL DISPERSION SYSTEM

AND DEVICES; William J. Benton, et al., 524/774; 349/20, 89, 92; 428/1; 524/722, 729, 871; 528/44 [IMAGE AVAILABLE]

US PAT NO: 3,872,050 [IMAGE AVAILABLE] L18: 79 of 85

ABSTRACT:

Liquid crystal materials, particularly cholesteric liquid crystal materials, are protected against dust, contamination and the like by being dispersed as discrete naked aggregates in polyurethane materials. The liquid crystal

material is mixed with polyurethane-elastomer or polyurethane polymers and thereafter polymerization or drying of the mixture precursors is carried out. The liquid crystal material is uniformly dispersed in the polyurethane without experiencing chemical degradation. Films, sheets, or other three-dimensional forms of polyurethane polymer containing dispersed liquid crystals can then be used as temperature indicators, stress indicators, or for other purposes, e.g., novelty items and toys. In certain installations the iridescence of the product achieves useful aesthetic properties.

80. 3,864,313, Feb. 4, 1975, LATENT CURING AGENT FOR ISOCYANATE TERMINATED PREPOLYMERS; Samuel Eugene Susman, 528/61, 52; 564/104 [IMAGE AVAILABLE]

US PAT NO: 3,864,313 [IMAGE AVAILABLE] L18: 80 of 85

ABSTRACT:

A novel composition comprising a polyurethane prepolymer having at least difunctionality in admixture with 1,1-dimethyl-3-cyanoguanidine which is storage stable and which cures rapidly to a tough, cross-linked polyurethane polymer, a method for the production thereof and the cured polymer per se, are disclosed.

81. 3,862,261, Jan. 21, 1975, MELAMINE RESIN-POLYOL-POLYURETHANE COATING COMPOSITION AND ARTICLE COATED THEREWITH; Darrell D. Stoddard, 428/412; 427/375; 428/423.1, 502; 524/542; 525/443, 454, 456 [IMAGE AVAILABLE]

US PAT NO: 3,862,261 [IMAGE AVAILABLE] L18: 81 of 85

ABSTRACT:

The coating compositions of the disclosure comprise:

1. A melamine resin of the tri- through hexa- substituted alkoxy ethers of formaldehyde- or acetaldehyde- melamine condensation products;

US PAT NO: 3,862,261 [IMAGE AVAILABLE] L18: 81 of 85

2. a polyol; and

3. a polyurethane; dissolved in a solvent which will evaporate when a coating of the composition is applied to an article, the weight ratio of the melamine resin to the polyurethane being about 8 to 1 and of the polyol to the polyurethane varying from about 2.5 to 1 to 1 to 1.

Preferably, articles which comprise a substrate formed of a polycarbonate resin are coated with the cured coating composition.

82. 3,671,470, Jun. 20, 1972, RIGID POLYURETHANE COMPOSITIONS WITH

IMPROVED

PROPERTIES; Leslie C. Case, 521/166; 260/DIG.24; 528/73, 78 [IMAGE AVAILABLE]

US PAT NO: 3,671,470 [IMAGE AVAILABLE]

L18: 82 of 85

ABSTRACT:

Polyurethane formulations based on a polyol component which incorporates a hydroxyalkyl-substituted Mannich condensation product and a substantial quantity of cyclic hydrocarbon radicals are described. Such formulations

US PAT NO: 3,671,470 [IMAGE AVAILABLE]

L18: 82 of 85

yield rigid polyurethane foams which exhibit unusual inherent flame retardancy and exceptionally good dimensional stability under adverse conditions of temperature and humidity.

83. 3,661,245, May 9, 1972, ABRASION-RESISTANT CONVEYOR BELT; Edward K. Mol, et al., 198/688.1, 699.1, 847 [IMAGE AVAILABLE]

US PAT NO: 3,661,245 [IMAGE AVAILABLE]

L18: 83 of 85

ABSTRACT:

A conveyor belt with multiple surface areas providing both traction and resistance to abrasion and cutting, and a method of manufacturing the belt.

84. 3,644,229, Feb. 22, 1972, HYDROPHILIC-POROMERIC FOAM METHOD OF MAKING, AND ARTICLES MADE THEREFROM; Eugene B. Butler, et al., 521/75, 82, 88, 91, 93, 97, 98, 137; 525/129 [IMAGE AVAILABLE]

US PAT NO: 3,644,229 [IMAGE AVAILABLE]

L18: 84 of 85

ABSTRACT:

This invention relates to a hydrophilic and poromeric foam made from a blend of plastisol grade vinyl chloride resin, at least one compatible liquid plasticizer, a stabilizer for said vinyl chloride resin, a polyurethane precursor and a mixture of specific emulsifiers.

85. 3,572,963, Mar. 30, 1971, INLET TURNING RING SEAL; John A. Marino, 415/172.1, 173.3, 173.4, 197 [IMAGE AVAILABLE]

US PAT NO: 3,572,963 [IMAGE AVAILABLE]

L18: 85 of 85

ABSTRACT:

An improved turning ring seal is provided at the inlet of a turboblower to

prevent high pressure fluid from discharging back into the inlet of the impeller. The stationary portion of the seal is provided by an integral curved annular shoulder around the inlet of the casing. The rotating portion of the seal is provided by the inner diameter of the blade shroud.

US PAT NO: 3,572,963 [IMAGE AVAILABLE]

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